

# EXHIBIT L

## **VIR2US, INC.'S PRELIMINARY INVALIDITY CONTENTIONS**

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## **I. INTRODUCTION**

Plaintiff and Counterclaim Defendant Vir2us, Inc. (“Vir2us”) hereby provides a preliminary identification of prior art references that render the patent claims asserted by Defendants and Counterclaim Plaintiffs Invincea, Inc. and Invincea Labs, LLC (“Invincea”), invalid pursuant to 35 U.S.C. §§ 102 or 103. The “Invincea Asserted Patent” (US Patent No. 8,839,422) and “Invincea Asserted Claims” are those identified in Invincea’s October 26, 2015 Preliminary Infringement Contentions.

Vir2us contends that none of the Invincea Asserted Claims of the ’422 patent are supported by US Provisional Patent Application No. 61/221,749 (“the ’749 Provisional”) because the ’749 Provisional does not describe each and every limitation set forth by any of the Invincea Asserted Claims. Accordingly, the ’422 patent is only entitled to a priority date of June 30, 2010, the filing date of US Patent Application No. 12/827,203 which later issued as the ’422 patent.

In these Preliminary Invalidity Contentions, with respect to each Invincea Asserted Claim, Vir2us: (a) identifies currently known prior art that either anticipates or renders obvious each asserted claim; (b) specifies whether each such item of prior art anticipates or renders obvious the applicable claim; and (c) submits charts for illustrative prior art references identifying where each element is disclosed or rendered obvious by the prior art.

## **II. RESERVATIONS**

Vir2us reserves the right to amend these Preliminary Invalidity Contentions. For example, Vir2us reserves the right to amend these Preliminary Invalidity Contentions if Invincea later provides any information that it failed to provide in its previous disclosures including its Preliminary Infringement Contentions, or if Invincea amends those disclosures in any way. Moreover, discovery is ongoing, and Vir2us’s prior art investigation is still in progress. Vir2us

has not yet deposed any of the named inventors of the Invincea Asserted Patent, or begun taking discovery from relevant third parties—including the original assignee of the Invincea Asserted Patent. Vir2us reserves the right to revise, amend, or supplement its Preliminary Invalidity Contentions as it receives information from third parties, consistent with the Local Rules and the Federal Rules of Civil Procedure.

Moreover, Vir2us reserves the right to revise, amend, or supplement its ultimate contentions concerning the invalidity of the asserted claims, which may change depending upon the Court's construction of claim terms and/or positions that Invincea or its expert witnesses may take concerning claim interpretation, infringement, and/or invalidity issues. To the extent the following contentions reflect constructions of claim limitations consistent with or implicit in Invincea's Preliminary Infringement Contentions, no inference is intended nor should any be drawn that Vir2us agrees with Invincea's claim constructions, and Vir2us expressly reserves the right to contest such claim constructions. Vir2us offers these preliminary contentions in view of Invincea's Preliminary Infringement Contentions and without prejudice to any position Vir2us may ultimately take as to any claim construction issues.

In addition, these contentions are in no way an endorsement of Invincea's apparent infringement theories, and any argument herein that a prior art standard discloses a claimed limitation is made without prejudice to Vir2us's right to argue that the Vir2us Accused Products do not necessarily practice any claimed limitation.

Prior art not included in this disclosure, whether known or not known to Vir2us, may later become relevant. In particular, Vir2us is currently unaware of the extent, if any, to which Invincea will contend that limitations of the asserted claims are not disclosed in the prior art identified by Vir2us. To the extent that such an issue arises, Vir2us reserves the right to identify

other references that would have made the addition of the allegedly missing limitation to the disclosed device or method obvious.

Vir2us's claim charts, submitted as part of these Preliminary Invalidity Contentions, cite to particular teachings and disclosures of the prior art as applied to features of the Invincea Asserted Claims. The cited portions are only examples, and Vir2us reserves the right to rely on uncited portions of the prior art references and on other publications and expert testimony as aids in understanding and interpreting the cited portions, as providing context thereto, and as additional evidence that the prior art discloses a claim limitation. Vir2us further reserves the right to rely on uncited portions of the prior art references, other publications, and testimony to establish bases for obviousness (including but not limited to reasons to combine the prior art references with other prior art references).

The identification of any patent or patent publication shall be deemed to include any counterpart patent or application filed or issued anywhere in the world. The citation to certain references, shall be deemed to inherently include any other known products, tools, or systems that the reference incorporates, implements, or discusses, and thus would qualify as prior art under 35 U.S.C. § 102.

The references discussed in the claim charts may disclose the elements of the asserted claims explicitly and/or inherently, and/or they may be relied upon to show the state of the art in the relevant time frame. The suggested obviousness combinations may be provided in the alternative to contentions that one or more claims are anticipated, and are not meant to suggest that any reference included in the combinations is not by itself anticipatory.

For purposes of these Preliminary Invalidity Contentions, Vir2us identifies prior art references and provides element-by-element claim charts based in part on the apparent

constructions of the asserted claims advanced by Invincea in its Preliminary Infringement Contentions. All claim charts shall be deemed to incorporate this document by reference. Nothing stated herein shall be treated as an admission or suggestion that Vir2ys agrees with Invincea regarding either the scope of any of the asserted claims or the claim constructions advanced or implied by it in its Preliminary Infringement Contentions or anywhere else. Moreover, nothing in these Preliminary Invalidity Contentions shall be treated as an admission that any Vir2us product operates in any particular way or meets any limitations of the claims; for example, nothing in these Preliminary Invalidity Contentions should be treated as an admission that Vir2us's products function in ways similar to the prior art cited herein.

Depending on the Court's construction of claim terms, and/or positions that Invincea or its expert witness(es) may take concerning claim interpretation, infringement, and/or invalidity issues, different charted prior art references may be of greater or lesser relevance and different combinations of these references may be implicated. Given this uncertainty, the charts may reflect alternative applications of the prior art against the asserted claims.

### **III. GENERAL COMMENTS**

#### **A. General Reasons to Modify, Extend, or Combine Prior Art References**

The Supreme Court has held that "[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 416 (2007). "When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one." *Id.* at 417. As the Supreme Court made clear, "[f]or the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill." *Id.*

In order to determine whether there is an apparent reason to combine the known elements in the fashion claimed by the patent at issue, a court can “look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art.” *Id.* at 418. For example, obviousness can be demonstrated by showing “there existed at the time of invention a known problem for which there was an obvious solution encompassed by the patent’s claims.” *Id.* at 420. “[A]ny need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed.” *Id.* Common sense also teaches that “familiar items may have obvious uses beyond their primary purposes, and in many cases a person of ordinary skill will be able to fit the teachings of multiple patents together like pieces of a puzzle.” *Id.*

Thus, the motivation to combine the teachings of the prior art references disclosed herein is found in the references themselves and/or: (1) the nature of the problem being solved; (2) the express, implied and inherent teachings of the prior art; (3) the knowledge of persons of ordinary skill in the art; (4) the fact that the prior art is generally directed towards the same or similar problems; and/or (5) the predictable results obtained in combining the different elements of the prior art.

In light of these principles and the factual context of the computer security industry, certain computer systems and solutions incorporating, implementing or relying on various commercially available or well-known software components, products, or tools may together be treated as a single reference. The foregoing general comments are relevant to how a person of ordinary skill would understand the prior art references in the field of the Invincea Asserted Patent, and also relevant to which concepts a person of ordinary skill would deem obvious – both for single-reference obviousness and obviousness combinations.



#### IV. INVALIDITY CONTENTIONS FOR THE INVINCEA ASSERTED PATENT

##### A. Identification of Prior Art for the '422 Patent

Subject to Vir2us's reservation of rights set forth above, Vir2us identifies the following references on which it may rely as invalidating the Invincea Asserted Claims of the '422 Patent.

##### 1. *Patent References*

Number	Country of Origin	Filing Date	Publication Date	Issue Date
2009/0125902	US	Feb. 26, 2008	May 14, 2009	Oct. 7, 2014
2008/0244747	US	Mar. 30, 2007	Oct. 2, 2008	Mar. 6, 2012
8,793,787	US	Jan. 23, 2009	Jul. 29, 2010	Jul. 29, 2014
7,836,303	US	Dec. 9, 2005	Jun. 14, 2007	Nov. 16, 2010
8,196,205	US	Jun. 26, 2006	Jul. 26, 2007	Jun. 5, 2012

##### 2. *Publication References*

Title	Publication Date	Author(s) / Publisher
Web Canary: A Virtualized Web Browser to Support Large-Scale Silent Collaboration in Detecting Malicious Web Sites ("Web Canary")	November 15, 2008	Jiang Wang, Anup Ghosh, and Yih Huang
Capture Communication Protocol	Sept. 22, 2007	Victoria University of Wellington, New Zealand
Capture-HPC, About Capture Client Honeypot / Honeyclient	Sept. 22, 2008	Seifert, Christian and Steenson, Ramon. Victoria University of Wellington, New Zealand
Capture-HPC Client Honeypot / Honeyclient	Sept. 2, 2008	Victoria University of Wellington, New Zealand
Know Your Enemy: Malicious Web Servers	Aug. 9, 2007	<a href="http://www.honey-pot.org">http://www.honey-pot.org</a>

### 3. *Prior Art Systems*

Name	Earliest Date of Public Knowledge
Capture Client Honeypot / Capture-HPC Project	At least as early as August 9, 2007

As illustrations of how these references invalidate all of the Invincea Asserted Claims Vir2us has provided accompanying charts for the references listed in the table below. In the table, “A” indicates where Vir2us has charted anticipation, “O” indicates where Vir2us has charted obviousness, and “A/O” indicates where Vir2us has charted both anticipation and obviousness.

Title	Anticipation/ Obviousness	Chart(s)
Web Canary	A/O	Exhibit 1
US 2009/0125902 (“Ghosh”)	O	Exhibit 2
US 2008/0244747 (“Gleichauf”)	A/O	Exhibit 3
Capture Communication Protocol	A/O	Exhibit 4

#### **B. Reasons to Modify, Extend, or Combine Claimed Concepts**

As referenced above, multiple prior art references disclose all concepts claimed in the ’422 patent. To the extent Invincea argues that any concept claimed in the ’422 patent was not contained in any one prior art reference, it would, at a minimum, have been obvious to adapt each reference to include the concept or combine it with other references that disclose the concept. In addition, each of the constituent techniques described here was well-known to those of skill in the art, and understood to be among a menu of available design choices for implementing control signaling in a telecommunications network. The reasons for modifying or combining references include those identified in the General Comments set forth in Section III above, which is incorporated by reference into this section, as well as the following:

**1. All Invincea Asserted Claims**

To the extent that any of the references identified in Exhibits 1-4 do not explicitly disclose the following claim limitation, *transmitting information to at least one collection computer about potential malicious activity when the operation of the at least one operating system of the at least one virtual browsing environment includes potential malicious activity, the information including at least one website address and an indication of an operation of the at least one operating system when the at least one browser application executed within the at least one virtual browsing environment accessed at least one website at the at least one website address*, all of the Invincea Asserted claims are obvious based at least on the following references or combination of references.

**a. Web Canary**

To the extent Web Canary is not found to anticipate all of the Invincea Asserted Claims, Web Canary itself renders all of the Invincea Asserted Claims obvious based on a person of skill in the art's ordinary knowledge and common sense. Web Canary specifically describes the use of the Capture Communication Protocol. The Capture Communication Protocol necessarily, or at minimum has the capability, to send an "*an indication of an operation of the at least one operating system when the at least one browser application executed within the at least one virtual browsing environment accessed at least one website at the at least one website address*" from the Capture Client to the Capture Server (i.e. a collection computer) upon the detection of potentially malicious activity by the Capture Client. The Capture Communication Protocol was commercially available software that is specifically described and used in the implementation described in Web Canary, which necessarily sends or has the capability to send "*an indication of an operation of the at least one operating system*" from a Capture Client to a Capture Server (i.e. collection computer). *See*, Exhibit 4, claim 1[f]. After accounting for the capability of the

Capture Communication Protocol and the knowledge and common sense of a person of ordinary skill in the art, Web Canary either specifically discloses or renders all of the Invincea Asserted Claims obvious.

**b. Web Canary and Capture Communication Protocol**

It would be obvious to a person of ordinary skill in the art to combine Web Canary and the Capture Communication Protocol. The combination of Web Canary and Capture the Communication Protocol discloses all claim limitations of all of the Invincea Asserted Claims. For example, to the extent that Web Canary does not disclose transmitting an “*an indication of an operation of the at least one operating system when the at least one browser application executed within the at least one virtual browsing environment accessed at least one website at the at least one website address*” it would be obvious for a person of ordinary skill in the art to combine Web Canary and the Capture Communication Protocol. The Capture Communication Protocol discloses this claim limitation. *See*, for example, Exhibit 4 at claim 1[f]. Moreover, Web Canary specifically describes the use of the Capture Communication Protocol, which provides a specific motivation to combine Web Canary with Capture Communication Protocol. *See*, Exhibit 1, claim 1[f]. A person of ordinary skill in the art would also rely upon their ordinary knowledge and common sense to combine these references. The Capture Communication Protocol was commercially available software known to a person of ordinary skill in the art to necessarily send, or at minimum have the capability to send, an “*an indication of an operation of the at least one operating system when the at least one browser application executed within the at least one virtual browsing environment accessed at least one website at the at least one website address*” from the Capture Client to the Capture Server (collection computer) upon the detection of potentially malicious activity by the Capture Client. *See*, Exhibit 4, claim 1[f]. Additionally, a person of ordinary skill in the art would be motivated to

combine Web Canary with the Capture Communication Protocol to provide additional forensic information beyond a website address to be utilized in analyzing any “*potential malicious activity*” at a collection computer. For example, the Capture Communication Protocol specifically identifies sending “*an indication of an operation of the at least one operating system when the at least one browser application executed within the at least one virtual browsing environment accessed at least one website at the at least one website address.*” See, for example, Exhibit 4, claim 1[f]. Additionally, a person of ordinary skill in the art would also be motivated to combine Web Canary and the Capture Communication Protocol because they are the same field of endeavor and directed to solving the same problem – detecting and/or containing malicious software or websites. The combination of Web Canary and the Capture Communication Protocol would merely use commercially available software to achieve a known, desirable, predictable and therefore obvious result.

**c. Capture Communication Protocol and Web Canary**

To the extent that the Capture Communication Protocol does not disclose “*transmitting information to at least one collection computer about potential malicious activity ..., the information including at least one website address*” it would be obvious for a person of ordinary skill in the art to combine the Capture Communication Protocol and Web Canary in a manner that meets all claim limitations of all of the Invincea Asserted Claims. As a result, all of the Invincea Asserted Claims are obvious based on the combination of the Capture Communication Protocol and Web Canary and the general knowledge and common sense of a person of ordinary skill in the art. For example, Web Canary describes the use of the Capture Communication Protocol in a system that includes “*transmitting information to at least one collection computer about potential malicious activity ..., the information including at least one website address*” and provides a motivation to combine Capture Communication Protocol and Web Canary. See,

Exhibit 1, claim 1[f]. A person of ordinary skill in the art would also be motivated to combine Capture Communication Protocol and Web Canary because they are in the same field of endeavor and directed to solving the same problem – detecting and/or containing malicious software or websites. Moreover, to the extent that the Capture Communication Protocol discloses a system under the control of a Capture Server that does not transmit a website address after the detection of malicious activity because the website address is already known to the Capture Server, it would be obvious to modify the Capture Communication Protocol to transmit a website address to a server that did not a priori know the website address where malicious activity was detected, because this would be known and obviously useful forensic information to identify malicious websites – one of the specific purposes of the Capture Communication Protocol. Additionally, a person of ordinary skill in the art would consider it an insubstantial difference whether a website address was sent after potentially malicious activity was detected by a Capture Client, sent before potentially malicious activity was detected, or already known to the Capture Server (collection computer) because in either case the Capture Server (collection computer) is made aware of the website that serves the potentially malicious activity. The combination of the Capture Communication Protocol and Web Canary would merely use commercially available software to achieve a known, desirable, and predictable result and is therefore obvious.

**d. Ghosh and Web Canary, Capture Communication Protocol, or Web Canary and Communication Protocol**

To the extent that Ghosh is not found to disclose the claim element, *transmitting information to at least one collection computer about potential malicious activity when the operation of the at least one operating system of the at least one virtual browsing environment includes potential malicious activity, the information including at least one website address and*

*an indication of an operation of the at least one operating system when the at least one browser application executed within the at least one virtual browsing environment accessed at least one website at the at least one website address*, it would be obvious to modify Ghosh and combine Ghosh with the Capture Communication Protocol, Web Canary, or the combination of the Capture Communication Protocol and Web Canary. A person of ordinary skill in the art would be motivated to combine Ghosh with Web Canary, the Capture Communication Protocol, or the combination of Web Canary and the Capture Communication Protocol because they are the same field of endeavor and directed to solving the same problem – detecting and/or containing malicious software or websites. Web Canary or the Capture Communication Protocol both disclose this claim limitation. A person of ordinary skill in the art would be motivated to combine Ghosh with either Web Canary or the Capture Communication Protocol and send information to a collection computer to collection forensic information at a centralized location in order to identify malicious websites. Web Canary and the Capture Communication Protocol both disclose this as a desirable goal. *See*, Exhibits 1 and 4, claim 1[f]. Additionally, reporting information back to a centralized location would be known and desirable to a person of ordinary skill in the art as this architecture was common in the security field prior to the priority date of the '422 patent, for example, in antivirus, honeypots, and other malware identification software. The combination of Ghosh with either Web Canary or the Capture Communication Protocol would achieve a known, desirable, and predictable result and is therefore obvious.

**e. Gleichauf and Web Canary, Capture Communication Protocol, or Web Canary and Capture Communication Protocol**

To the extent that Gleichauf is not found to disclose the claim element, *transmitting information to at least one collection computer about potential malicious activity when the operation of the at least one operating system of the at least one virtual browsing environment*

*includes potential malicious activity, the information including at least one website address and an indication of an operation of the at least one operating system when the at least one browser application executed within the at least one virtual browsing environment accessed at least one website at the at least one website address*, it would be obvious to a person of ordinary skill in the art to combine Gleichauf with Web Canary, the Capture Communication Protocol, or the combination of Web Canary and the Capture Communication Protocol. Gleichauf discloses notifying the Management Domain Controller (i.e. a “collection computer”) of problems in the OS and an OS-Application. See, Exhibit 3, claim element 1[f]. Web Canary discloses sending this claim element. See above. Similarly, the Capture Communication Protocol discloses this claim element or renders it obvious by disclosing subject matter that is insubstantially different from this claim element. See above. Additionally, the combination of Web Canary and the Capture Communication Protocol discloses this claim element. See above. A person of ordinary skill in the art would be motivated to combine these references because they are all directed to the same field of endeavor, Web Canary and the Capture Communication Protocol specifically disclose that sending or making this information known to a collection computer or central server is desirable, and based on a person of skill in the art’s general knowledge and common sense.

## **2. Claim 2**

To the extent that the Capture Communication Protocol does not disclose “*displaying information about potential malicious activity to at least one user when the operation of the at least one operating system of the at least one virtual browsing environment includes potential malicious activity*”, claim 2 is obvious based on the combination of the Capture Communication Protocol and Ghosh, which in combination discloses all elements of claim 2. Ghosh specifically discloses informing a user that potential malicious software has been detected. Additionally, a person of ordinary skill in the art would be aware that other security software (e.g. Web Canary,



antivirus, malware detection, spyware detection, etc.) also inform users when viruses or other potential malicious activity is detected. Accordingly, a person of ordinary skill in the art would be motivated to combine Ghosh or rely upon their general knowledge of other security software to improve the Capture Communication Protocol by displaying information about potential malicious activity to a user using known and predictable methods to achieve the known desirable result of informing users of potential malicious activity.

**C. Invalidity under 35 U.S.C. § 112**

**1. *All Invincea Asserted Claims Are Invalid Under 35 U.S.C. §112, ¶ 2 for Indefiniteness***

The claim term “*an indication of an operation of the at least one operating system*” in Invincea Asserted Claims 1 and 20 is indefinite under 35 U.S.C. §112, ¶ 2 because it would not be understood by a person of ordinary skill in the art with reasonable certainty. The term “*an indication of an operation of the at least one operating system*” does not have an established meaning in the art and the specification and claims provide insufficient guidance for a person of ordinary skill in the art to determine the scope of the claims with reasonable certainty. For example, the specification does not use the terms or describe any embodiments related to an “*indication,*” “*operation of the at least one operating system,*” or “*an indication of an operation of the at least one operating system*” and fails to provide reasonable certainty to a person of ordinary skill in the art regarding the scope of this claim term and the claims containing it. Additionally, a person of ordinary skill in the art would be unable to determine the scope of this claim because the specification and claims give insufficient guidance to a person of ordinary skill in the art to distinguish between “*an indication of an operation of the at least one operating system*” and “*an operation of the at least one operating system.*” Moreover, neither “*an indication of an operation of the at least one operating system*” or “*an operation of the at least*

*one operating system*” would be understood by a person of ordinary skill in the art with reasonable certainty.

The term “*potential malicious activity*” in Invincea Asserted Claims 1, 2, and 20 is indefinite because it would not be understood by a person of ordinary skill in the art with reasonable certainty because the specification and claims provide fail to provide sufficient guidance for a person of ordinary skill in the art to understand the scope of these claims with reasonable certainty. The specification fails to provide objective boundaries to enable a person of ordinary skill in the art to determine the scope of this claim term. Additionally, a person of ordinary skill in the art is required to rely upon subjective judgment as to what is potentially malicious and what is not for a particular application because the specification does not provide sufficient guidance to enable a person of ordinary skill in the art to distinguish what is “*potential malicious activity*” from what is not.

**2. *All Invincea Asserted Claims Are Invalid Under 35 U.S.C. §112, ¶ 1 for Indefiniteness***

Even if a person of ordinary skill in the art can understand the scope of the claim term “*an indication of an operation of the at least one operating system*” in Invincea Asserted Claims 1 and 20, they are nonetheless invalid for failure to satisfy the written description requirement of 35 U.S.C. 112, ¶ 1. The specification of the ’422 patent as originally filed does not provide any disclosure to support the claims or establish that the inventors were in possession of any alleged invention that included the claim element “*an indication of an operation of the at least one operating system*” or transmitting “*an indication of an operation of the at least one operating system*” to a collection computer.

Dated: November 23, 2015

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